

CLAIMS:

1. A method for manufacturing an optical fiber preform, wherein a glass rod for a core or a glass rod for the core and a cladding is inserted into a glass pipe for the cladding, pressure in the glass pipe is reduced while the glass pipe and the glass rod are heated, and the glass pipe and the glass rod are formed into a single unit and elongated, the method for manufacturing an optical fiber preform comprising:

forming the glass pipe and the glass rod into a single unit after the glass pipe or the glass rod, or both, has been elongated, and then elongating the glass pipe and glass rod that have been formed into a single unit, until the outer diameter of the glass pipe becomes a predetermined diameter.

2. The method for manufacturing an optical fiber preform according to claim 1,

wherein the length from a position at which the glass pipe or the glass rod, or both, begin to elongate to a position at which the glass pipe and the glass rod become a single unit is $L1$, and

the length from the position at which the glass pipe and the glass rod become a single unit to the position at which the glass pipe and the glass rod have elongated so that the outer diameter of the glass pipe becomes a predetermined diameter is $L2$, then

the glass pipe and the glass rod are formed into a single unit and elongated so as to satisfy the equation:

$$0.1 \leq L1/(L1+L2) \leq 0.8.$$

3. The method for manufacturing an optical fiber preform

10018369-121901

according to claim 1 or claim 2,

wherein if the outer diameter of the glass pipe is $D0$ and the inner diameter of the glass pipe is $d0$, and

if the outer diameter of the glass pipe is $D1$ and the
 5 inner diameter of the glass pipe is $d1$ at the position at
 which the glass pipe and the glass rod become a single unit,
 then

the glass pipe and the glass rod are formed into a
 single unit and are elongated so as to satisfy the equation:

10 $(d0/D0)/(d1/D1) \leq 2.$

1. A method for manufacturing an optical fiber preform,
 wherein a glass rod for a core or a glass rod for the core
 and a cladding is inserted into a glass pipe for the cladding,
 15 the pressure in the glass pipe is reduced while the glass
 pipe and the glass rod are heated by a heating furnace, and
 the glass pipe and the glass rod are formed into a single
 unit and are elongated, the method for manufacturing an
 optical fiber preform comprising:

20 adjusting the feed rate at which the glass rod is fed
 into the heating furnace such that it is faster than the feed
 rate of the glass pipe and not more than twice the feed rate
 of the glass pipe.

25 5. The method for manufacturing an optical fiber preform
 according to claim 4,

wherein the elongated glass rod that is used has a
 smaller diameter in comparison to the cross section area of
 the glass pipe, so as to make the gap between the glass pipe
 30 and the glass rod large, and

wherein the feed rate of the glass rod is adjusted such

10018369.124901

that a set core/cladding ratio is achieved when the glass pipe and the glass rod are formed into a single unit.

6. The method for manufacturing an optical fiber preform
5 according to claim 4 or claim 5,

wherein the feed rate of the glass rod is adjusted such that the glass pipe and the glass rod are formed into a single unit at a desired core/cladding ratio in the longitudinal direction.

10

7. The method for manufacturing an optical fiber preform according to claim 4 or claim 5,

wherein the glass pipe and the glass rod are formed into a single unit while the glass pipe or the glass rod, or
15 both, are rotated around the longitudinal axis of the glass pipe or glass rod.

10018369, 4, 12, 1901